

Amendments to the Claims:

1 - 71. (canceled)

72. (currently amended) An inflatable balloon structure for catheters,

the balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure ~~with~~ including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, ~~in order to deploy the balloon in all the radial directions;~~

~~the balloon structure comprising a wall which has, transverse the longitudinal extent, at any point, an annular cross-section;~~

~~said annular cross-section being delimited externally by an outer surface which, at least in an intermediate portion, is suitable for coming into contact with the object to be dilated, and~~

~~said annular cross-section being delimited internally by and an inner surface which delimits an inflation chamber, in which~~

at least one wall cavity is provided in the wall ~~and is formed within an annular cross-section which delimits the inflation chamber, so as to be disposed between the outer surface and the inner surface,~~

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the proximal end and the distal end,

the wall cavity following the balloon structure outline ~~at least following the proximal shank and the distal shank~~ from the proximal end to the distal end.

73. (previously presented) A balloon structure according to Claim 72 in which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is free of protuberances or recesses.

74. (previously presented) A balloon structure according to Claim 72 in which the wall cavity is within the wall which delimits the inflation chamber for the whole of its extent which affects the balloon structure.

75. (previously presented) A balloon structure according to Claim 72 which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is cylindrical.

76. (previously presented) A balloon structure according to Claim 72 in which, when the inflation chamber is expanded, the balloon structure has an annular cross-section of the outer surface, transverse the longitudinal extent of the balloon structure.

77. (previously presented) A balloon structure according to Claim 72 in which, when the inflation chamber is expanded, the balloon structure has a substantially circular cross-section of the outer surface, transverse the longitudinal extent of the balloon structure.

78. (previously presented) A balloon structure according to Claim 72 in which the balloon comprises a proximal tubular portion in the vicinity of the proximal end.

79. (previously presented) A balloon structure according to Claim 72 in which the balloon comprises a proximal shank connecting the proximal tubular portion and an intermediate portion.

80. (previously presented) A balloon structure according to Claim 79, in which the proximal shank has an internal taper angle of between 20 degrees and 40 degrees, preferably of 30 degrees.

81. (previously presented) A balloon structure according to Claim 72 in which the balloon comprises a distal connecting shank between the intermediate portion and a portion for connection to a distal catheter tip.

82. (previously presented) A balloon structure according to Claim 81, in which the distal shank has an internal taper angle of between 20 degrees and 40 degrees, preferably of 30 degrees.

83. (previously presented) A balloon structure according to Claim 72, in which the wall cavity is separated from the inflation chamber by an internal portion of the wall.

84. (previously presented) A balloon structure according to Claim 72, in which the cavity is separated from the outer surface by an external portion of the wall.

85. (previously presented) A balloon structure according to Claim 72, in which, when the balloon structure is inflated or expanded, the inner surface of the intermediate portion is smoothed, rounded, or free of sharp corners.

86. (previously presented) A balloon structure according to Claim 72, in which, when the balloon structure is inflated or expanded, the inner surface of the intermediate portion has an annular cross-section, transverse the longitudinal extent of the balloon.

87. (previously presented) A balloon structure according to Claim 72, in which the structure is produced from an extruded tube having at least two cavities, one of which is deformed to form the inflation chamber of the balloon structure.

88. (previously presented) A balloon structure according to Claim 87, in which, prior to the deformation of a cavity of the extruded tube to form an inflation chamber, the extruded tube has an at least partially flat partition separating the at least two cavities.

89. (previously presented) A balloon structure according to Claim 87, in which, prior to the deformation of a cavity of the extruded tube to form an inflation chamber, the extruded tube has a partition separating the at least two cavities, which partition has, in cross-section transverse the extruded tube, a minimum thickness of between 55% and 100% of the minimum thickness of the wall portion which separates one of the cavities from the outer surface.

90. (previously presented) A balloon structure according to Claim 87, in which, prior to the deformation of a cavity of the extruded tube to form an inflation chamber, the extruded tube has a partition separating the at least two cavities which partition has, in cross-section transverse the extruded tube, a minimum thickness of between 60% and 70% of the minimum thickness of the wall portion which separates one of the cavities from the outer surface.

91. (previously presented) A balloon structure according to Claim 72, in which the balloon structure is produced by expansion of an inflation cavity of a tube with at least two cavities, the tube being produced by coextrusion of at least two materials, a first of these materials forming the wall or wall portion which delimits the inflation cavity.

92. (previously presented) A balloon structure according to Claim 91, in which the material which delimits the inflation cavity is a material that is semi-compliant or partially yielding but resistant to the maximum balloon-inflation pressure.

93. (previously presented) A balloon structure according to Claim 72, in which the balloon structure is produced by expansion of an inflation cavity of a tube with at least

two cavities, the tube being produced by coextrusion of at least two materials, a second of these materials forming at least a part of the wall portion which delimits a wall cavity.

94. (previously presented) A balloon structure according to Claim 93, in which the second material forms the wall portion which separates the wall cavity from the outer surface.

95. (previously presented) A balloon structure according to Claim 93, in which the second material has a greater flexibility than the first material.

96. (previously presented) A balloon structure according to Claim 72, in which the wall cavity is coated with or delimited by a layer of material with a coefficient of friction such as to facilitate sliding of a guide wire housed in the wall cavity.

97. (previously presented) A balloon structure according to Claim 72, in which the balloon structure is produced by expansion of an inflation cavity of a tube with at least two cavities, the tube being produced by coextrusion of three materials.

98. (previously presented) A balloon structure according to Claim 72, in which, when the balloon structure is inflated or expanded, the wall cavity is separated from the inflation chamber by a wall portion which has, in cross-section transverse the longitudinal extent of the balloon, a thickness of between 55% and 100% of the thickness of a wall portion which separates the wall cavity from the outer surface.

99. (previously presented) A balloon structure according to Claim 72, in which, when the balloon structure is inflated or expanded, the wall cavity is separated from the inflation chamber by a wall portion which has, in cross-section transverse the

longitudinal extent of the balloon, a thickness of between 60% and 70% of the thickness of a wall portion which separates the wall cavity from the outer surface.

100. (previously presented) A balloon structure according to Claim 72, in which the inflation chamber is closed in a leaktight manner onto an apex tip, leaving solely openings for access to one or more guide-wire cavities.

101. (currently amended) An inflatable balloon structure for catheters, such as a catheter for angioplasty or for depositing an endolumenal prosthesis or stent in a duct, for example, a vascular duct,

the balloon structure being of predominant longitudinal extent with a proximal end and a distal end and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure ~~with~~ including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, ~~in order to deploy the balloon in all the radial directions,~~

~~the balloon structure comprising a wall which has, transverse the longitudinal extent, at any point, an annular cross-section,~~

~~said annular cross-section being delimited externally by an outer surface which, at least in an intermediate portion, is suitable for coming into contact with the object to be dilated, and~~

~~said annular cross-section being delimited internally by and an inner surface which delimits an inflation chamber, in which~~

at least one wall cavity is provided in the wall ~~and is formed within an annular cross-section which delimits the inflation chamber, so as to be disposed between the outer surface and the inner surface,~~

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the proximal end and the distal end,

the wall cavity following the balloon structure outline ~~at least following the proximal shank and the distal shank~~ from the proximal end to the distal end.

102 - 104. (canceled)

105. (currently amended) A balloon catheter comprising a balloon structure,

said balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure ~~with~~ including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, ~~in order to deploy the balloon in all the radial directions;~~

~~the balloon structure comprising a wall which has, transverse the longitudinal extent, at any point, an annular cross-section;~~

~~said annular cross-section being delimited externally by an outer surface which, at least in an intermediate portion, is suitable for coming into contact with the object to be dilated, and~~

~~said annular cross-section being delimited internally by and an inner surface which delimits an inflation chamber, in which~~

at least one wall cavity is provided in the wall ~~and is formed within an annular cross-section which delimits the inflation chamber, so as to be disposed between the outer surface and the inner surface,~~

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the proximal end and the distal end,

the wall cavity following the balloon structure outline ~~at least following the proximal shank and the distal shank~~ from the proximal end to the distal end.

106 - 112. (canceled)

113. (previously presented) A catheter according to Claim 105, in which the wall portion which separates the wall cavity from the outer surface has an opening which forms a lateral aperture for allowing a guide wire to be inserted in the wall cavity or to emerge therefrom.

114. (previously presented) A catheter according to Claim 105, in which the balloon structure is connected proximally to a shaft comprising an inflation cavity connected to the inflation chamber in a leaktight manner for the flow of a fluid from the shaft to the inflation chamber and vice versa.

115 - 142. (canceled)